

REMARKS

Applicant has added claims 17 and 18 to protect additional aspects of the present invention. Upon entry of this Amendment, claims 1-4 and 6-18 remain pending and under current examination.

Regarding the Office Action:

In the Office Action, the Examiner rejected claims 1, 4, 6-8, and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Nam et al. (U.S. Patent Application Publication No. 2002/0109217) ("Nam") in view of Bura (U.S. Patent No. 4,489,487) ("Bura"), Davis et al. (U.S. Patent No. 5,976,306) ("Davis") and either Cobbley et al. (U.S. Patent Application Publication No. 2004/0154956A1) ("Cobbley") or alleged "admitted prior art" (specification par. [0008]) ("AAPA"); rejected claims 2, 3, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura, Davis, and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of Sasaki et al. (U.S. Patent No. 6,294,439) ("Sasaki"); rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura, Davis, and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of Rogowski (U.S. Patent No. 5,684,707) ("Rogowski"); rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura, Davis, and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of either Wojewnik, et al. (U.S. Patent No. 6,640,434) ("Wojewnik") or Varaprasad et al. (U.S. Patent No. 5,910,854) ("Varaprasad"); rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura, Davis, and either Cobbley or AAPA as applied to claims 1 and 6 above and further in view of either Wojewnik or Varaprasad as applied to claim 10 and further in view of Rogowski; and rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura, Davis, and either Cobbley or AAPA and Sasaki applied

to claim 12 and further in view of Rogowski. The Examiner responded to Applicant's previous arguments in a section entitled "Response to Arguments."

Applicant traverses the rejections for the following reasons.¹

Regarding the Examiner's "Response to Arguments":

First, the Examiner alleged that "[t]he currently drafted claims do not require that the chips be placed one by one on the substrate rather than as a complete stack. Method steps are not limited to the order presented in a claim unless the claim specifically recites the limitation of the listed order" (Office Action, p. 7). Applicant disputes the Examiner's allegation because independent claim 1, in several places, recites how the claimed method steps are carried out on the sectioned first and second semiconductor elements *in order of their sectioning*. Applicant notes that the claimed method does require a specific order to the steps recited, and this is specifically called for in the claim language.

Second, the Examiner alleged that Applicant's previous arguments regarding AAPA were not persuasive. Specifically, the Examiner stated:

[Applicants argue that AAPA] teaches away from stacking an upper semiconductor element on a lower semiconductor element such that the upper one protrudes from outside the shape of the lower one. This is not persuasive because applicant has performed and is currently claiming the method that he purports to be taught away from. If one of ordinary skill in the art would have viewed the teachings in the admitted prior art as teaching away from a protruding upper semiconductor element, then applicant should also have been led away from such an invention as is currently claimed (Office Action, pp. 7-8).

The Examiner's allegation is not supported by applicable law. First, on pages 13-14 of the Amendment filed on June 9, 2005, Applicant argued that *both* Cobbley and AAPA teach

¹ The Office Action may contain statements characterizing the related art, case law, and the claims. Regardless of whether any such statements are specifically identified herein, Applicant declines to automatically subscribe to any statements in the Office Action.

away from the claimed invention (and the other cited references). Second, the Examiner used impermissible hindsight by alleging that Applicant's own discussion of the state of the prior art at the time the invention was made would have led him away from the very invention he claims.

The requirement "at the time the invention was made" is to avoid impermissible hindsight. [...] "It is difficult but necessary that the decisionmaker forget what he or she has been taught . . . about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art." *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). M.P.E.P. § 2141.01(III), emphasis added.

Thus,

To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art. M.P.E.P. § 2142, emphasis added.

The Examiner's own response to Applicant's previous arguments demonstrates that the necessary steps for a proper determination of obviousness have not been followed. Applicant therefore disputes Examiner's allegations, noting that it is the "[t]otality of the prior art [which] must be considered, and proceeding contrary to accepted wisdom in the art is evidence of nonobviousness. *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986)" M.P.E.P. § 2145(X)(D)(3), emphasis added. The Examiner's arguments are therefore not sufficient to establish a *prima facie* case of obviousness over any of the pending claims.

Rejection of Claims 1, 4, 6-8, and 14-16 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claims 1, 4, 6-8, and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura, Davis, and either Cobbley or AAPA.

Applicant respectfully disagrees with the Examiner's arguments and conclusions. *A prima facie* case of obviousness has not been established.

Applicant incorporates by reference the arguments of record in the Amendment filed on June 9, 2005, and supplement them as follows.

Nam teaches that "after adhesive tape 68 is placed on die pad 66 of lead frame 60, step 35 attaches second chip 72 to die pad 66 through adhesive tape 68. A die pick-up tool 54 picks up second chip 72 from a chip provider, such as a wafer table 56, and places second chip 72 on adhesive tape 68." Nam, par. [0030]. In Nam, the adhesive tape is placed on die pad 66 of lead frame 60 *in advance* of attaching second chip 72 to die pad 66. Nam does not teach that the adhesive film is adhered to the semiconductor element. That is, Nam does not teach at least "picking up the sectioned first and second semiconductor elements from the holding member by holding them with an absorption collet in order of their sectioning" (claim 1), or "a pickup section for picking up sectioned first and second semiconductor elements by holding them with an absorption collet in order of their sectioning from a semiconductor wafer which has sectioned semiconductor elements being held by a holding member" (claim 6).

In addition, Nam also does not disclose that the adhesive film held by a porous absorption member is stuck to the semiconductor element held by an absorption collet. That is, Nam does not teach "sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet in order of their sectioning" (claim 1), or "a film sticking section for sticking

the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet” (claim 6).

Since Nam places adhesive tap on the die pad of the lead frame, Nam does not teach or suggest at least sticking the adhesive film on the semiconductor element, as recited in the language of claims 1 and 6 just quoted.

Furthermore, Nam teaches a first semiconductor chip 64 and a second semiconductor chip 72 bonded on a lead frame 60. Nam’s first and second semiconductor chips (64, 72) are bonded directly on the lead frame 60. *See*, for example, Nam’s Fig. 4. The second semiconductor chip 72 is not adhered to the first semiconductor chip 64. Nam does not teach that semiconductor elements are adhered to each other, as Applicant has claimed in claims 1 and 6. Therefore, Nam cannot teach or suggest the claimed “adhering the second semiconductor element on the first semiconductor element by the element adhesive film” (claim 1), or “an element adhesion section for adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film and adhering the second semiconductor element on the first semiconductor element by the element adhesive film” (claim 6).

Secondary reference Bura teaches that “[t]he surface 25 [of chip 20], on which the PC board is to be attached, has a strip 26 of a double-sided adhesive tape applied thereto” (col. 3, lines 42-44). However, Bura does not teach or suggest Applicant’s claimed method for sticking the adhesive tape to the semiconductor element. That is, Bura does not teach or suggest at least “sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the

absorption collet in order of their sectioning” (claim 1), or “a film sticking section for sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet” (claim 6).

Newly-applied secondary reference Davis also does not teach or suggest Applicant’s claimed method for sticking the adhesive tape to the semiconductor element. Davis teaches only that dies from a semiconductor wafer are picked up from a holding member. *See Davis*, Abstract. That is, Davis does not teach or suggest “sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet in order of their sectioning” (claim 1), or “a film sticking section for sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet” (claim 6).

The Examiner again applied Cobbley and AAPA to teach “that stacking of semiconductor elements improves the packing density of a semiconductor board so that the boards can have a smaller footprint” and “the semiconductor elements are stacked to each other before being applied to the board” (Office Action, p. 3). Cobbley and AAPA do not cure the deficiencies of the other cited references.

Secondary reference Cobbley teaches that “[t]he first die 62 may advantageously include a layer of adhesive, such as paste or epoxy, on the underside 62a” (par. [0026]), and “by placing the underside 62a of the first die 62 in contact with the second die 64, the second die 64 is adhesively coupled to the first die 62, thereby creating a stack of two die” (par. [0027]).

However, Cobbley does not teach a method for forming the layer of adhesive to the underside of

die. That is, Cobbley does not teach or suggest “sticking the sectioned element adhesive film held by the porous absorption member *to each of the back surfaces* of the picked-up first and second semiconductor elements held by the absorption collet in order of their sectioning” (claim 1, emphasis added), or “a film sticking section for sticking the sectioned element adhesive film held by the porous absorption member *to each of the back surfaces* of the picked-up first and second semiconductor elements held by the absorption collet” (claim 6, emphasis added).

Thus, Applicant has demonstrated that the Examiner’s application of the secondary references in an attempt to cure Nam’s deficiencies still fails to establish *prima facie* obviousness. The Examiner’s application of Bura, Davis, Cobbley, and AAPA still does not cure Nam’s deficiencies pointed out herein. That is, each of the cited references, taken alone or in combination, fail to teach or suggest at least the above-quoted elements of Applicant’s independent claims 1 and 6.

Accordingly, the Examiner’s reliance on these references fails to establish *prima facie* obviousness. Independent claims 1 and 6 are allowable, and dependent claims 4, 7, 8, 17, and 18 are also allowable at least by virtue of their respective dependence from allowable base claim 1 or 6. Therefore, the improper 35 U.S.C. § 103(a) rejection should be withdrawn.

Regarding the remaining 35 U.S.C. § 103(a) rejections over one or more of Nam, Bura, Davis, Cobbley, AAPA, Sasaki, Wojewnik, Varaprasad, and Rogowski:

The M.P.E.P. states that “[p]rior art rejections should ordinarily be confined strictly to the best available art. [...] *Merely cumulative rejections, i.e., those which would clearly fall if the primary rejection were not sustained, should be avoided.*” M.P.E.P. § 706.02(I), emphasis added. Applicant notes that the application of nine separate references to formulate the secondary 35 U.S.C. § 103(a) rejections of Applicant’s dependent claims 2, 3, and 9-13 are

clearly cumulative, and fail because the primary rejection fails to establish a *prima facie* case of obviousness of independent claims 1 and 6.

Dependent claims include each and every element recited in the base claim. *See* M.P.E.P. § 608.01(n)(III). The Examiner has therefore not met at least one of the essential criteria for establishing a *prima facie* case of obviousness. Thus, dependent claims 2, 3, and 9-13 are allowable for the reasons presented herein, and at least by virtue of their respective dependence from allowable base claim 1 or 6. Therefore, the improper 35 U.S.C. § 103(a) rejection of claims 2, 3, and 9-13 should be withdrawn.

Conclusion:

In view of the foregoing, Applicant requests reconsideration of the application. Pending claims 1-4 and 6-18 are in condition for allowance, and Applicant requests a favorable action.

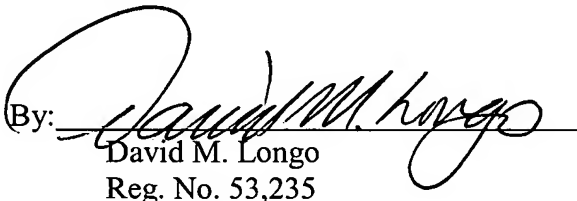
If there are any remaining issues or misunderstandings, Applicant requests the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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